

NETTS PROJECT/DEMONSTRATION SUMMARY

Title: In Situ Bioremediation of Fuel/Ground
Water Circulation Wells

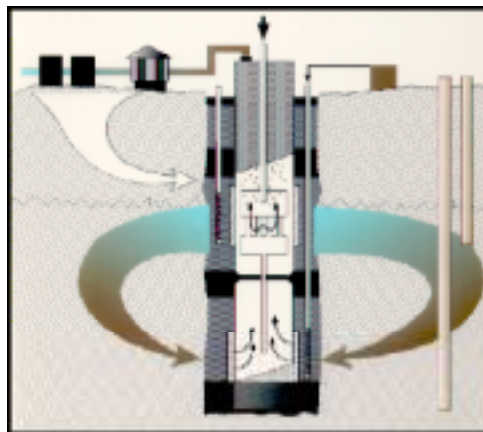
NCBC-05-95

Lead PI/Affiliation: Barry Spargo/NRL
Co-PI's/Affiliations: James Mueller/SBP Tech, Inc.,
Michael Montgomery/NRL

Date/Duration:

Initiated - 06/94

Completed - 10/96



Abstract:

The groundwater circulation well technology is designed to stimulate microorganisms in groundwater, thus optimizing environmental conditions for degrading petroleum contaminants. In situ bioremediation can be successful in treating groundwater contaminated with petroleum products such as waste oil, jet fuels, diesel, and gasoline. The purpose of the groundwater circulation well system demonstration was to provide a viable, cost effective method to remove the gasoline contaminant from the shallow water aquifer and the saturated soil.

Circulation of ground water is generated by pulling outside air through the well system. This air is directed in a way that causes bubbling to occur in the groundwater within the well. An uplift effect is created pulling groundwater from the deep section of the well and circulating it out at a shallow point in the well creating a circulation cell in the aquifer.

The groundwater circulation also moves air through the soil exposing indigenous soil bacteria to more contaminants; therefore more contaminant is degraded than would be in a static system. The bubbling effect also aerates the water, thus supplying necessary oxygen to the bacteria.

Results/Conclusions:

Data from this project and other ground water circulation technology projects in the United States are under evaluation. An ESTCP report will be available summer of 1999.

Publications:

- (1) "In Situ Bioremediation and Efficacy Monitoring", Naval Research Laboratory, NRL/PU/6115--96-317, Barry Spargo Ed., October 1996.
- (2) See attached list of publications and presentations.